U.S. Department
of Transportation
**Federal Aviation
Administration**

SDR Summary

Service Difficulty Reporting

September 28, 1997 - October 04, 1997

GENERAL AVIATION, ZAC-327

You can improve Air Safety by reporting the problem when you see it!

SECTION

ISSUE 97-40

U.S. Department of Transportation
Federal Aviation Administration

SDR SUMMARY

General Aviation, ZAC-327

This summary includes domestic (United States) Service Difficulty Reports (SDRs) entered into the data base for aircraft weighing 12,500 lbs. and below. It also includes reports on aeronautical products (engines, propellers, and components), and all helicopters. A separate section for International SDRs for aircraft weighing 12,500 lbs. and under has also been included. Under a data exchange agreement, International SDRs are submitted to the FAA by the Civil Aviation Authority of other countries (currently, Canada - CAN, and Australia - AUS). All reports are sorted by aircraft make, model group (basic model), and Joint Aircraft System/Component (JASC) code. Within each aircraft model group, the specific model shown may vary, but similar types of reports will be grouped together and listed in ascending order by their JASC code. Each field contains all information submitted to the FAA. Some fields are not included in order to make the summary easier to read. Additional information may be obtained by referring to the "operator control number." Send your request to the Aviation Data Systems Branch, AFS-620 at the address or phone below.

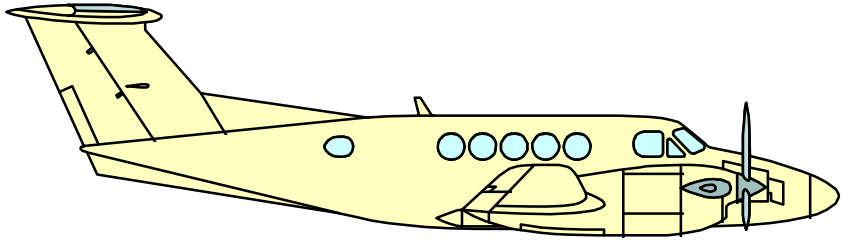
"The Service Difficulty Reports in this publication are derived from unverified information submitted by the aviation community without FAA verification for accuracy. The number of SDRs submitted is not an indication of the mechanical reliability or fitness of an airline or individual operator, and the information should not be used as such."

Comments are welcomed and may be directed to:

Federal Aviation Administration
Aviation Data Systems Branch, AFS-620
P.O. Box 25082
Oklahoma City, OK 73125-5029
Phone: (405) 954-4171, Fax: (405) 954-4748

Your continued participation is essential and is an integral part of ensuring aviation safety. Thank you for supporting the Service Difficulty Program! If you have any questions regarding this special notice you can contact John Jackson at (405) 954-6486, or Jim Gillespie at (405) 954-1141, or Blake McDonald at (405) 954-0307 in the Aviation Systems Branch (AFS-620). Their E-mail addresses are:

john_e_jackson@mmacmail.jccbi.gov **james_gillespie@mmacmail.jccbi.gov** **blake_mcdonald@mmacmail.jccbi.gov**



SIGNIFICANT OCCURRENCE REPORT

U.S. Department
of Transportation
Federal Aviation Administration

THE SIGNIFICANT OCCURRENCE REPORT

The Significant Occurrence Report is a compilation all of the star bordered reports that appear in the General Aviation Service Difficulty Report (SDR) Summary, ZAC-327. The Significant Occurrence Report is used to highlight industry problem areas to field inspectors and the aviation public.

Limited analysis is performed by the Aviation Data Systems Branch, AFS-620 during the preparation of the "Significant Occurrence Report", which is generated each week and is included in the front of the Air Carrier SDR Summary. Significant Reports are hand selected by AFS-620's inspectors based on the individual merit of each report. The criteria for selection includes, but is not limited to, items that indicate high failure rates; items related to accidents or incidents; or design or maintenance failures which may affect the safe operation of the aircraft.

In some cases, this limited analysis of SDR data leads to the preparation of information bulletins which are routed to the appropriate product certification office for further investigation of the problem. The end result may be the issuance of an airworthiness directive (AD) by the Aircraft Certification Service (AIR) if warranted.

The Significant Occurrence Report (section I) of the weekly SDR Summary is not intended to be a summary of all significant events and should not be used as such. We recommend that you review further the applicable sections of the SDR summary that may be of interest.

SIGNIFICANT OCCURRENCE REPORT

ATA / OPER	REG. NO / SERIAL NO	ACFT MAKE / ACFT MODEL	ENG MAKE / ENG MDL	PROP MAKE / PROP MDL	COMP MFG / COMP MDL	PART NAME / PART NUMBER	PART COND / PART LOC.	TT / TSO	DIFF. DATE / OPER CONT NO
5610	47938	GROB				CANOPY	OPENED	1400	9/5/97
	3841K87	G103ATWINII					COCKPIT		97ZZZX4192
	BOUNCING ON TAKEOFF ROLL AND TURBULENCE ON TOW CAUSED CANOPY LOCK HANDLE TO UNLOCK AND CANOPY OPENED IN-FLIGHT BREAKING THE REAR HINGE AND GLASS. IT DID NOT BREAK LOOSE FROM THE GLIDER. RECOMMEND OVERCENTER TYPE LOCK SPRING TO HOLD LATCH CLOSED.								
2510	2269Q	PIPER				FRAME ASSY	BROKEN	4775	8/29/97
	287725189	PA28140				79536000	COCKPIT		97ZZZX4203
	WHILE REPLACING SEAT COVERING, FOUND SEAT FRAME TUBING BROKEN AND SEPARATED AT BOTH LEFT AND RIGHT FRONT POINTS WHERE SEAT FRAME IS WELDED TO VERTICAL SUPPORT THAT CONTAINS SEAT TRACK CLAMP. THIS SEAT HAS BEEN IN SERVICE FOR 20 YEARS. SUSPECT CAUSE: THE STRESS OF MANY LANDINGS AND TAKEOFFS AND LOTS OF PUSHING ON THE SEAT BACK BY USERS.								
3230	4484T	PIPER				LINK ASSY	ROD END FAILED		3/12/97
	347250110	PA34200				9582900	NLG		97ZZZX4188
	P/N 452334 BEARING. ROD END WHICH IS PART OF LINK ASSY, NLG DOWNLOCK, FAILED BY BENDING AND PARTING IN THREADED PORTION. NLG COLLAPSED ON LANDING ROLL-OUT. WHEN BENT, NLG DRAG BRACE WILL NOT BE OVERCENTER, BUT A DOWN AND LOCKED GREEN LIGHT WILL BE ON. THIS IS DUE TO DESIGN OF SYSTEM.								
7320	34ME	PIPER	CONT			FITTING	BROKEN		8/1/97
VIB3	347870045	PA34200T	TSIO360*		6405636A1	630119	LT ENGINE		97ZZZX4207
	FITTING BROKE IN THREADS WHERE THEY SCREW INTO THROTTLE CONTROL. ENGINE QUIT IN FLIGHT. CONTINUED FLIGHT ON OTHER ENGINE TO BNA. PILOT SAW FUEL COMING FROM COWLING AFTER ENGINE QUIT. REMOVED AND REPLACED BROKEN FITTINGS. LEAK AND OPS CHECK OK. FITTING APPEARED DAMAGED BY PREVIOUS REMOVAL ATTEMPT. THIS AREA IS MISTAKEN FOR HAVING A SCREEN TO INSPECT, BUT NO SCREEN IS INSTALLED.								

FEDERAL AVIATION ADMINISTRATION

SIGNIFICANT OCCURRENCE REPORT INDEX

Showing Specific Part Numbers and Aircraft Model by Year

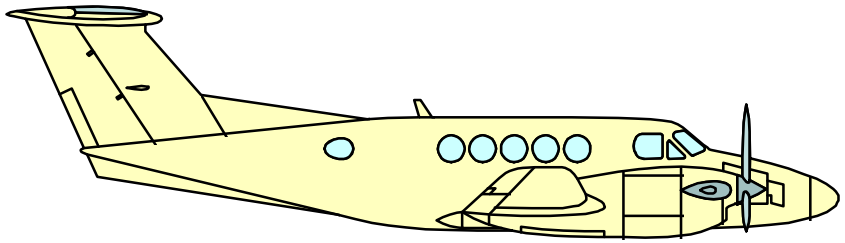
FOR THE PERIOD OF: SEPTEMBER 28, 1997 TO OCTOBER 04, 1997

PART NAME / PART NUMBER	ACFT MODEL	Total	YEAR 90	91	92	97
FITTING						
630119	PA34200T	1	-	-	-	1
TOTAL		**1**				**1**
FRAME ASSY						
79536000	PA28140	1	-	-	-	1
TOTAL		**1**				**1**
LINK ASSY						
9582900	PA34200	5	1	1	2	1
	PA34200T	1	-	-	-	1
TOTAL		**6**	**1**	**1**	**2**	**2**

END OF REPORT

DOMESTIC

SERVICE DIFFICULTY REPORT



DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - AIRCRAFT

9/28/97 TO 10/4/97 ISSUE 97-40 ZAC-327

ATA / OPER	REG. NO / SERIAL NO	ACFT MAKE / ACFT MODEL	ENG MAKE / ENG MDL	PROP MAKE / PROP MDL	COMP MFG / COMP MDL	PART NAME / PART NUMBER	PART COND / PART LOC.	TT / TSO	DIFF. DATE / OPER CONT NO
3510	8093W	BEECH				HOSE	SPLIT	1861	8/1/97
	BB1396	B200				101380491	OXYGEN SYSTEM		97ZZZX4200
	OXYGEN HOSE IN LEFT HEADLINER AFT OF COCKPIT 'D' WINDOW WAS FOUND SPLIT WHEN SYSTEM WAS ACTIVATED. HOSE IS A SHORT FLEXIBLE HOSE THAT IS VERY TWISTED WHEN INSTALLED. RECOMMEND A REPLACEMENT OF SHORTER OXYGEN HOSE FOR THIS AREA.								
3213	5316R	CESSNA				AXLE FITTING	CRACKED	5211	9/9/97
	172RG0053	172RG				22411001	RT MLG		97ZZZX4190
	CASTING CRACKED IN TWO LOCATIONS. CRACKS WERE LOCATED AT 90 DEGREES TO THE BOLT HOLES, AND PARALLEL TO THE BORE DIAMETER. ONE CRACK APPROXIMATELY 2.500 INCHES LONG WAS LOCATED IN THE WEB SECTION ABOVE THE BOLT HOLES. SECOND CRACK LOCATED IN THE LOWER WEB SECTION BELOW THE BOLT HOLES AND APPROXIMATELY 1.500 INCHES LONG. CRACKS WERE NOT DEEP ENOUGH IN DEPTH TO INTERSECT THE BOLT HOLES.								
3231	766EA	CESSNA				BELLCRANK	FAILED	14709	9/15/97
OEZA	402B0401	402B				08411066	RT MLG		97ZZZX4211
	RIGHT MAIN GEAR DOOR DID NOT CLOSE WHEN GEAR SELECTED UP. FOUND BELLCRANK P/N 0841106-6 CRACKED INTO TWO PIECES. SUSPECT FATIGUE CAUSED THE FAILURE.								
5610	47938	GROB				CANOPY	OPENED	1400	9/5/97
	3841K87	G103ATWINII					COCKPIT		97ZZZX4192
*****	BOUNCING ON TAKEOFF ROLL AND TURBULENCE ON TOW CAUSED CANOPY LOCK HANDLE TO UNLOCK AND CANOPY OPENED IN-FLIGHT BREAKING THE REAR HINGE AND GLASS. IT DID NOT BREAK LOOSE FROM THE GLIDER. RECOMMEND OVERCENTER TYPE LOCK SPRING TO HOLD LATCH CLOSED.								
3260	1195J	GULSTM				SWITCH	MISADJUSTED		8/15/97
	195	112				ISE13	NLG		97ZZZX4191
	FOUND NOSE GEAR MICROSWITCH INSTALLED TO FULL FORWARD LIMIT ON MOUNTING BRACKET. BRACKET MOUNTED ON ENGINE MOUNT WITH HOSE CLAMPS. FOUND BRACKET INSTALLED TOO FAR AFT. THIS PREVENTED PROPER ADJUSTMENT OF MICROSWITCH WHICH WAS MAKING CONTACT WITH PAINTED SURFACE ON TOP OF NOSE GEAR. ADJUSTED BRACKET AND MICROSWITCH TO PROPER LOCATION. NO INFORMATION ON BRACKET ADJUSTMENT IN MM. BRACKET NOT SHOWN IN PARTS MANUAL.								
3230	78384	GULSTM			OZONE	CLEVIS	SEPARATED	21000	9/12/97
HXUA	500B1297112	500B			710015	ED12526	RETRACT ARM		97ZZZX4199
	MLG RETRACT ARM CLEVIS SEPARATED.								
5711		LUSCOM				SPAR CAPSTRIP	SEPARATED		8/1/97
		8A					WING		97ZZZX4202
	AS REQUIRED, CONDUCTED THE WING INSPECTION ON LUSCOMBE METAL WING IAW APPENDIX TO FAA AD96-24-17. FOUND NO INTERGRANULAR CORROSION. DID FIND SOME LOOSE INSULATION AND URINE STAINS WHICH WAS EASILY REMOVED WITH COAT HANGERS AND BY SPRAYING OUT THE WING WITH A HOSE. WHILE LIFTING THE WING TO INSPECT THROUGH THE STRUT HOLE AND AT THE INBOARD ROOT AREA HEARD A 'POP' IN THE WING THAT WAS NOT EXPECTED, THOUGHT IT MIGHT BE OIL CANNING OF THE SKINS IN THE WING TOP. LATER INSPECTION FOUND THE CABIN ROOF SKIN HAD BEEN DEFORMED AT THE WING ROOT, AND THAT THE REAR SPAR CAPSTRIP HAD SEPARATED FROM THE SPAR WEB AT THE WING ATTACHMENT FITTING. THE CRACK IS .75 INCH LONG.								
5321	40599	PIPER				FLOOR PANEL	DAMAGED	7586	9/9/97
	277405345	PA23250					BAG COMPT		97ZZZX4208
	REAR BAGGAGE FLOOR DAMAGED FROM ABUSE LOADING FREIGHT.								

******* DENOTES SIGNIFICANT OCCURRENCE**

ATA / OPER	REG. NO / SERIAL NO	ACFT MAKE / ACFT MODEL	ENG MAKE / ENG MDL	PROP MAKE / PROP MDL	COMP MFG / COMP MDL	PART NAME / PART NUMBER	PART COND / PART LOC.	TT / TSO	DIFF. DATE / OPER CONT NO
2510	2269Q	PIPER				FRAME ASSY	BROKEN	4775	8/29/97
	287725189	PA28140				79536000	COCKPIT		97ZZZX4203
*****	WHILE REPLACING SEAT COVERING, FOUND SEAT FRAME TUBING BROKEN AND SEPARATED AT BOTH LEFT AND RIGHT FRONT POINTS WHERE SEAT FRAME IS WELDED TO VERTICAL SUPPORT THAT CONTAINS SEAT TRACK CLAMP. THIS SEAT HAS BEEN IN SERVICE FOR 20 YEARS. SUSPECT CAUSE: THE STRESS OF MANY LANDINGS AND TAKEOFFS AND LOTS OF PUSHING ON THE SEAT BACK BY USERS.								
3233	237MA	PIPER			WIEBEL	ACTUATOR	FAULTY	2961	8/1/97
	31P8414037	PA31P350				21151	MLG		97ZZZX4205
	PILOT REPORTED INDICATION OF UNWANTED LANDING GEAR EXTENSION. AFTER TROUBLESHOOTING HYDRAULIC SYSTEM, FOUND RT MAIN ACTUATOR O-RING AND SCRAPER SEAL ARE OLD. TEST FLIGHT OK, NO PROBLEM.								
7160	4365T	PIPER	LYC			VALVE	SEAL MISSING		8/25/97
	327200019	PA32260	O540E4B5			651427	CARB AIR BOX		97ZZZX4187
	SEALING FELT ON AIR BOX VALVE MISSING FROM OUTER EDGES EXCEPT FOR A 1 INCH SECTION THAT WAS 'HANGING ON'. THE FELT MATERIAL IS SANDWICHED BETWEEN 2 METAL PLATES WITH SOME FELT PROTRUDING TO PROVIDE SEAL. THE PROTRUDING PART WAS ALMOST ALL MISSING. THE POTENTIAL DANGER COULD BLOCK OR RESTRICT FUEL FLOW IF LODGED ACROSS VENTURI. IN THIS INSTANCE, MOST MATERIAL WAS GONE, SO NO PROBLEM EXCEPT FOR SEALING.								
3230	4484T	PIPER				LINK ASSY	ROD END FAILED		3/12/97
	347250110	PA34200				9582900	NLG		97ZZZX4188
*****	P/N 452334 BEARING. ROD END WHICH IS PART OF LINK ASSY, NLG DOWNLOCK, FAILED BY BENDING AND PARTING IN THREADED PORTION. NLG COLLAPSED ON LANDING ROLL-OUT. WHEN BENT, NLG DRAG BRACE WILL NOT BE OVERCENTER, BUT A DOWN AND LOCKED GREEN LIGHT WILL BE ON. THIS IS DUE TO DESIGN OF SYSTEM.								

******* DENOTES SIGNIFICANT OCCURRENCE**

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
2913	599BK	SNIAS				PUMP	WORN SPLINE	5640	9/15/97
	2735	AS350BA				5026780	HYDRAULIC SYSTEM		97ZZZX4214
	DURING IN-FLIGHT, HYDRAULIC LIGHT ILLUMINATED AND HYDRAULIC HORN CAME ON. PILOT MADE A PRECAUTIONARY LANDING AT AIRPORT TERMINAL. INSPECTED HYDRAULIC PUMP AND FOUND WORN SPLICE. REMOVED HYDRAULIC PUMP ASSY AND INSTALLED SERVICEABLE HYDRAULIC PUMP ASSY.								
6220	4AK	SNIAS				STOP BEARING	FAILED	2193	9/5/97
	2544	AS350B				704A33633156	BLUE BLADE		97ZZZX4213
	PILOT REPORTS VERTICAL VIBRATION AND RETURNED TO BASE. INSPECTION REVEALED 'BLUE' M/R SPHERICAL STOP BEARING, P/N 204A33-633 156, FAILED. REPLACED ALL THREE M/R SPHERICAL STOPS WITH P/N 704A33633-109. RUN-UP OPS CHECK GOOD.								

DOMESTIC SERVICE DIFFICULTY REPORT SUMMARY - ENGINES

ATA / OPER	REG. NO / SERIAL NO	ACFT MAKE / ACFT MODEL	ENG MAKE / ENG MDL	PROP MAKE / PROP MDL	COMP MFG / COMP MDL	PART NAME / PART NUMBER	PART COND / PART LOC.	TT / TSO	DIFF. DATE / OPER CONT NO
7414	11308	CESSNA	CONT		SLICK	DRIVE GEAR	TEETH STRIPPED	98	9/9/97
	15075317	150L	O200A		4201	36066	RT MAG		97ZZZX4204
	RUN-UP AT 1,700 RPM AT PROP OF 300 RPM ON THE RT MAG WAS NOTICED, LT MAG AT 1,800-1,900 RPM. ENGINE STARTED TO BACKFIRE WHILE RUNNING ON THE RT MAG. DECIDED NOT TO TAKE OFF, BROUGHT THE AIRPLANE OVER TO MAINTENANCE. RT MAG REMOVED AND MAG DRIVE GEAR HAD 3 TEETH MISSING. ENGINE WAS REMOVED. ENGINE HAD 98 HOURS ON TACHOMETER SINCE MAJOR OVERHAUL.								
7314	545SS	DIAMON	ROTAX		ROTAX	PUMP	LINE CRACKED	299	9/5/97
	10118	DA20A1	ROTAX912			996592	ENGINE		97ZZZX4189
	ENGINE DRIVEN FUEL PUMP LINE CRACKED AT PUMP WALL RESULTING IN FUEL DRIPPING INTO LOWER COWL AREA. CRACK IS AT BEND IN LINE WHERE IT MEETS PUMP. APPEARS LINE WAS BENT TO FACILITATE ROUTING. INSTALLED NEW PUMP.								
8530	2FOR	HELIO	LYC			PISTON PIN	BROKEN	499	8/15/97
	1244	H295	GO480G1D6				CYLINDER NR 5		97ZZZX4215
	OPERATORS WERE NOTIFIED AIRCRAFT'S ENGINE CONTAINED A PISTON PIN FROM THE BATCH LISTED IN LYC SB 527C. AIRCRAFT WAS REMOVED FROM SERVICE AND ALL CYLINDERS REMOVED TO VISUALLY INSPECT FOR BATCH NR 17328. CYLINDER NR 5 REVEALED BROKEN PIN. NUMERS WERE NOT CLEARLY VISIBLE, SO ALL PINS WERE CHANGED WITH NEW PINS DIRECT FROM LYCOMING.								
7414	56464	MAULE	LYC		BENDIX	MAGNETO	CASE CRACKED	3158	9/11/97
	7416C	M6235	IO540W1A5		D6LN3000	1068256011	ENGINE	388	97ZZZX4209
	MAGNETO CASE BROKEN AT TOP HOLD-DOWN LOCATION. DISCREPANCY DISCOVERED DURING 100-HOUR INSPECTION.								
8530	9595M	MOONE	LYC			COVER PLATE	DISPLACED		8/1/97
	670172	M20F	IO360A1A			7510	NR 1 INTAKE	75	97ZZZX4212
	ENGINE BEGAN TO RUN ROUGH IN FLIGHT, PRECAUTIONARY LANDING. FOUND INTAKE ROCKER SHAFT ON NR 1 CYLINDER HAD MOVED OUT OF POSITION DUE TO LOSS OF COVER PLATE, 7510. CAUSE OF COVER PLATE LOSS UNDETERMINED. SUBMITTER RECOMMENDS PERIODICAL RE-CHECK OF COVER PLATE NUT TORQUE.								
8520	252MA	PIPER	LYC			BEARING	FLAKED	32	9/9/97
EIRR	31P33	PA31P	TIGO541E1A			81619401	ENGINE		97ZZZX4206
	ENGINE REMOVED AFTER FINDING BEARING MATERIAL IN OIL SCREEN. DISASSEMBLED, FOUND ABOUT 1.5 SQUARE INCHES OF MATERIAL FLAKED OFF OF BEARING. SUSPECT POOR BOND TO BEARING.								
8530	4365T	PIPER	LYC			SHROUD TUBE	FRACTURED		8/25/97
	327200019	PA32260	O540E4B5				NR 2 CYLINDER		97ZZZX4184
	AFTER RUN-UP, OIL FILM NOTED ON LEFT SIDE OF ENGINE. OIL CAME FROM DENT IN PUSH ROD SHROUD TUBE WHICH WAS FOUND COMPLETELY FRACTURED AT DENT LOCATION. PUSH ROD HAD APPARENTLY RUBBED SHROUD AND CAUSED THE FRACTURE. DENT WAS ABOUT .0937 INCH DEEP. OTHER SHROUD TUBES HAD MINOR DENTS APPARENTLY LONG-STANDING. 1100 HRS SMOH/POTENTIAL FOR EXCITING MOMENTS IF NOT CORRECTED.								

******* DENOTES SIGNIFICANT OCCURRENCE**

ATA	REG. NO	ACFT MAKE	ENG MAKE	PROP MAKE	COMP MFG	PART NAME	PART COND	TT	DIFF. DATE
OPER	SERIAL NO	ACFT MODEL	ENG MDL	PROP MDL	COMP MDL	PART NUMBER	PART LOC.	TSO	OPER CONT NO
8550	4365T	PIPER	LYC			DRAIN TUBE	CHAFED		8/25/97
	327200019	PA32260	O540F4B5			68761	NR 2 CYLINDER		97ZZZX4186

NR 2 CYLINDER 71737 ROCKER DRAIN TUBE CHAFED THROUGH ABOUT 90 PERCENT OF WALL THICKNESS BY BOTTLE RETAINER (PIN EASILY PENETRATED 'PAPER-THIN' WALL') 68761 TUBES (3 OF EACH) HAD SUBSTANTIAL WEAR MARKS, AGAIN, TRIM BOTTLE RETAINER. NOTE: TY WRAPS ARE NOT A GOOD SUBSTITUTE FOR ADEL CLAMPS.

8550	4365T	PIPER	LYC			DRAIN TUBE	CHAFED		8/25/97
	327200019	PA32260	O540F4B5			71737	NR 2 ROCKER		97ZZZX4185

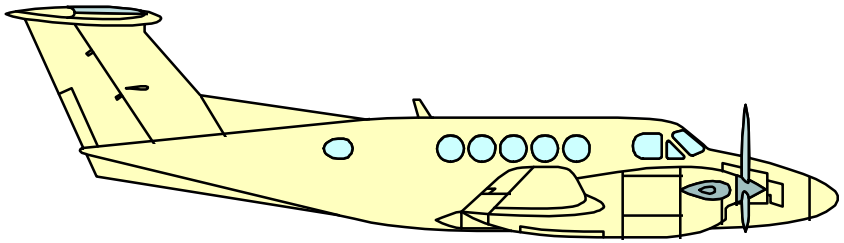
NR 2 CYLINDER 71737 ROCKER DRAIN TUBE CHAFED THROUGH ABOUT 90 PERCENT OF WALL THICKNESS BY BOTTLE RETAINER (PIN EASILY PENETRATED 'PAPER-THIN' WALL') 68761 TUBES (3 OF EACH) HAD SUBSTANTIAL WEAR MARKS, AGAIN, TRIM BOTTLE RETAINER. NOTE: TY WRAPS ARE NOT A GOOD SUBSTITUTE FOR ADEL CLAMPS.

7320	34ME	PIPER	CONT			FITTING	BROKEN		8/1/97
VIB3	347870045	PA34200T	TSIO360*		6405636A1	630119	LT ENGINE		97ZZZX4207

***** FITTING BROKE IN THREADS WHERE THEY SCREW INTO THROTTLE CONTROL. ENGINE QUIT IN FLIGHT. CONTINUED FLIGHT ON OTHER ENGINE TO BNA. PILOT SAW FUEL COMING FROM COWLING AFTER ENGINE QUIT. REMOVED AND REPLACED BROKEN FITTINGS. LEAK AND OPS CHECK OK. FITTING APPEARED DAMAGED BY PREVIOUS REMOVAL ATTEMPT. THIS AREA IS MISTAKEN FOR HAVING A SCREEN TO INSPECT, BUT NO SCREEN IS INSTALLED.

INTERNATIONAL

SERVICE DIFFICULTY REPORT



INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - AIRCRAFT

9/28/97 TO 10/4/97 ISSUE 97-40 ZAC-327

ATA	REG. NO	ACFT MAKE	ENG MAKE	PROP MAKE	COMP MFG	PART NAME	PART COND	TT	DIFF. DATE
OPER	SERIAL NO	ACFT MODEL	ENG MDL	PROP MDL	COMP MDL	PART NUMBER	PART LOC.	TSO	OPER CONT NO
								#Error	
								#Error	
	#Error								

******* DENOTES SIGNIFICANT OCCURRENCE**

INTERNATIONAL SERVICE DIFFICULTY REPORT - HELICOPTERS

9/28/97 TO 10/4/97 ISSUE 97-40 ZAC-327

ATA	REG. NO	ACFT MAKE	ENG MAKE	PROP MAKE	COMP MFG	PART NAME	PART COND	TT	DIFF. DATE
OPER	SERIAL NO	ACFT MODEL	ENG MDL	PROP MDL	COMP MDL	PART NUMBER	PART LOC.	TSO	OPER CONT NO
								#Error	
								#Error	
	#Error								

******* DENOTES SIGNIFICANT OCCURRENCE**

INTERNATIONAL SERVICE DIFFICULTY REPORT SUMMARY - ENGINES

ATA OPER	REG. NO SERIAL NO	ACFT MAKE ACFT MODEL	ENG MAKE ENG MDL	PROP MAKE PROP MDL	COMP MFG COMP MDL	PART NAME PART NUMBER	PART COND PART LOC.	TT TSO	DIFF. DATE OPER CONT NO
8530		PIPER PA32RT300T	LYC TIO540S1AD			VALVE SEAT	COCKED #6 CYL EXHAUST	1010	3/25/97 CA970715019

(CAN) DURING INSPECTION #6 CYLINDER WAS FOUND TO HAVE ZERO COMPRESSION. ON REMOVAL OF THE CYLINDER IT WAS FOUND THAT THE EXHAUST VALVE SEAT HAD LIFTED AND WAS COCKED AT AN ANGLE HOLDING THE EXHAUST VALVE OPEN. THIS RESULTED IN LACK OF COMPRESSION AND CAUSED ADDITIONAL DAMAGE TO THE ENGINE.

U.S. Department
of Transportation
Federal Aviation Administration

SERVICE DIFFICULTY REPORT SUMMARY

GENERAL AVIATION - INDEX

The following information provides a tally of the Service Difficulty Reports (SDR's) contained in this weeks issue of the General Aviation SDR Summary. The totals represent only a summation of the SDR's that were submitted to the FAA, Aviation Data Systems Branch, AFS-620, and processed in time for inclusion in the Summary. The first table is a tally of the number of SDR's submitted through the indicated Flight Standards District Office (FSDO). The second table sorts the SDR's by the aircraft or equipment make and model. The heading at the top of each table provides a two digit Joint Aircraft System/Component (JASC) code grouping (e.g., JASC codes 1100 thru 1800 are represented by the heading labeled 11-18) which categorizes in general, the problem areas for each reported discrepancy.

The Flight Standards Service Difficulty Program objective is to achieve prompt and appropriate correction of conditions adversely affecting continued airworthiness of aeronautical products. This is accomplished by the collection of Service Difficulty and Malfunction or Defect Reports. SDR's are consolidation and collation into common data base where they are analyzed for trends, problems, and alert information. This information is then disseminated to the appropriate segments of the aviation community and to other FAA offices.

The number of SDR's submitted is not an indicator of the mechanical reliability or fitness of an air carrier's aircraft fleet and should not be used as such. The air carriers certificate holding office has the primary responsibility for planning, programming evaluations, and assessing the performance of operators. Questions regarding an air carrier's fleet performance should be directed to the appropriate Flight Standards District Office, Certificate Management Office, or Certificate Management Unit.

GENERAL AVIATION SUMMARY INDEX BY DISTRICT OFFICE

DISTRICT OFFICE	SDR TOTALS BY FAA ATA SYSTEM CHAPTER								
	11-18	21-29	30-38	45-49	51-57	61-67	71-79	80-85	TOTAL
AL 05	0	0	0	0	0	0	1	0	1
CA	0	0	0	0	0	0	0	1	1
CE 09	0	0	0	0	1	0	0	0	1
EA 01	0	0	0	0	0	0	1	2	3
EA 07	0	0	1	0	0	0	0	1	2
EA 11	0	1	0	0	1	0	0	0	2
EA 17	0	0	1	0	0	1	0	0	2
EA 23	0	0	0	0	0	0	0	1	1
GL 21	0	0	0	0	0	0	1	0	1
GL 25	0	0	0	0	0	0	0	1	1
NM 03	0	0	1	0	0	0	0	0	1
NM 09	0	0	1	0	0	0	0	0	1
NM 11	0	0	1	0	0	0	0	0	1
SO 03	0	0	0	0	0	0	1	0	1
SO 33	0	0	0	0	0	0	0	1	1
SW 99	0	0	0	0	1	0	0	0	1
WP 01	0	0	1	0	0	0	0	0	1
WP 05	0	0	0	0	0	0	1	0	1
WP 13	0	1	0	0	0	1	0	0	2
WP 19	0	0	1	0	0	0	0	0	1
TOTALS	**0**	**2**	**7**	**0**	**3**	**2**	**5**	**7**	**26**

GENERAL AVIATION SUMMARY BY MANUFACT. MAKE AND MODEL

AIRCRAFT MAKE	AIRCRAFT MODEL	SDR TOTALS BY FAA ATA SYSTEM CHAPTER								
		11-18	21-29	30-38	45-49	51-57	61-67	71-79	80-85	TOTAL
BEECH	B200	0	0	1	0	0	0	0	0	1
CESSNA	150L	0	0	0	0	0	0	1	0	1
CESSNA	152	0	0	0	0	0	1	0	0	1
CESSNA	172RG	0	0	1	0	0	0	0	0	1
CESSNA	402B	0	0	1	0	0	0	0	0	1
DIAMON	DA20A1	0	0	0	0	0	0	1	0	1
GROB	G103ATWINII	0	0	0	0	1	0	0	0	1
GULSTM	112	0	0	1	0	0	0	0	0	1
GULSTM	500B	0	0	1	0	0	0	0	0	1
HELIO	H295	0	0	0	0	0	0	0	1	1
LUSCOM	8A	0	0	0	0	1	0	0	0	1
MAULE	M6235	0	0	0	0	0	0	1	0	1
MOONEY	M20F	0	0	0	0	0	0	0	1	1
PIPER	PA23250	0	0	0	0	1	0	0	0	1
PIPER	PA28140	0	1	0	0	0	0	0	0	1
PIPER	PA31P	0	0	0	0	0	0	0	1	1
PIPER	PA31P350	0	0	1	0	0	0	0	0	1
PIPER	PA32260	0	0	0	0	0	0	1	3	4
PIPER	PA32RT300T	0	0	0	0	0	0	0	1	1
PIPER	PA34200	0	0	1	0	0	0	0	0	1
PIPER	PA34200T	0	0	0	0	0	0	1	0	1
SNIAS	AS350B	0	0	0	0	0	1	0	0	1
SNIAS	AS350BA	0	1	0	0	0	0	0	0	1
	TOTALS	**0**	**2**	**7**	**0**	**3**	**2**	**5**	**7**	**26**

JOINT AIRCRAFT SYSTEM/COMPONENT CODE TABLE

PREFACE

The Joint Aircraft System/Component (JASC) Code Table is a modified version of the Air Transport Association of America (ATA), Specification 100 code. It was developed by the Federal Aviation Administration's (FAA), Aviation Data Systems Branch (AFS-620). Technical support was provided by the Galaxy Scientific Corporation, and various representatives of the air carrier and general aviation community.

Over the past four years, the JASC format of the ATA Spec 100 code has gained widespread industry acceptance. In a harmonized effort, the FAA's counterparts in Australia and Canada have adopted the JASC code with only a few exceptions. Some Canadian aircraft manufacturers have also recently adopted this new stardard.

This code table is constructed by using the new JASC four (4) digit code, along with an abbreviated code title. The abbreviated titles have been modified in some cases to clarify the intended use of the accompanying code. This table can be used as a quick reference chart, to assist in the coding and review of aircraft structures or systems data (i.e., Service Difficulty Report (SDR), Accident/Incident Report).

The current coding scheme used in the JASC code was introduced in May 1991, for the technical classification of SDR's. Its predecessor, the FAA aircraft system/component code, was a similar but more complex eight-digit code which was developed over 25 years ago. It was constructed around the computer technology of that period. It consisted of a four digit numerical code plus a four alpha character code to make data retrieval possible. Since that time, computer technology has advanced many fold. Reducing the code from eight to four characters simplifies coding, and in some cases, makes JASC coding match the ATA Specification 100 first three digits, which are used to identify aircraft systems. The ATA code does not reference the fourth digit, so it is free to be used for identifying components.

The JASC code aircraft structural section has increased due to problems inherent with aging aircraft. As an example, FAA code 5301 SXBD was expanded to 20 items due to the high rate of reporting in this area (8021 structural reports were received in 1989). In some instances, there was very little reporting and codes were combined into other systems if the safety impact was not significant. The overall reduction in codes has been from 568 FAA codes to 488 JASC codes, with the significant increase being in the structural area as stated earlier.

The JASC code divides the engine section into two major code groups to separate the turbine and reciprocating engines. The codes for the turbine engines are in JASC Chapter 72, Turbine/Turboprop Engine. The codes for the reciprocating engines are now exclusively found in JASC Chapter 85, Reciprocating Engine.

The other major deviation from ATA Spec 100 is in ATA section 2730, specifically involves the stall warning system. Early technology (primarily on smaller aircraft) directly linked the sensing of flight attitude to one of the components which furnished the means of manually controlling the flight attitude characteristics (elevator). Today, most large transport category aircraft utilize electronic units to sense the change in the environmental condition called stall, and use the data to influence navigation. ATA section 3410, Flight Environment Data, includes high speed warning in its code definition. Stall warning (low speed) is the reciprocal term of high speed warning, so its filing under the same code appears more logical. Thus, with the JASC code it was decided to move the stall warning system to Chapter 34 under the separate code JASC code 3418, Stall Warning System.

The FAA is continuing to pursue worldwide involvement from operators and manufacturers in addressing the need for international standardization of aircraft system/component codes. The ultimate goal is to develop a universal aircraft/component numbering standard which can be used in the manufacturer's maintenance manual, wiring diagram manual, system manuals and illustrated parts catalog. This harmonized standard must be a usable standard for the aircraft manufacturers, air carrier operators and the general aviation community.

We welcome comments and feedback regarding the possible forming of working groups to achieve this long range consideration of possibly harmonizing the ATA Specification 100 code and the JASC code. Comments may be directed to the FAA, Aviation Data Sytem Branch, AFS-620, P.O. Box 25082, Oklahoma City, OK 73125.

JOINT AIRCRAFT SYSTEM/COMPONENT CODE TABLE

JASC/ TITLE

11 PLACARDS AND MARKINGS

1100 PLACARDS AND MARKINGS

12 SERVICING

1210 FUEL SERVICING
1220 OIL SERVICING
1230 HYDRAULIC FLUID SERVICING
1240 COOLANT SERVICING

18 HELICOPTER VIBRATION

1800 HELICOPTER VIB/NOISE ANALYSIS
1810 HELICOPTER VIBRATION ANALYSIS
1820 HELICOPTER NOISE ANALYSIS

21 AIR CONDITIONING

2100 AIR CONDITIONING SYSTEM
2110 CABIN COMPRESSOR SYSTEM
2120 AIR DISTRIBUTION SYSTEM
2121 AIR DISTRIBUTION FAN
2130 CABIN PRESSURE CONTROL SYSTEM
2131 CABIN PRESSURE CONTROLLER
2132 CABIN PRESSURE INDICATOR
2133 PRESSURE REGUL/OUTFLOW VALVE
2134 CABIN PRESSURE SENSOR
2140 HEATING SYSTEM
2150 CABIN COOLING SYSTEM
2160 CABIN TEMPERATURE CONTROL SYSTEM
2161 CABIN TEMPERATURE CONTROLLER
2162 CABIN TEMPERATURE INDICATOR
2163 CABIN TEMPERATURE SENSOR
2170 HUMIDITY CONTROL SYSTEM

22 AUTO FLIGHT

2200 AUTO FLIGHT SYSTEM
2210 AUTOPILOT SYSTEM
2211 AUTOPILOT COMPUTER
2212 ALTITUDE CONTROLLER
2213 FLIGHT CONTROLLER
2214 AUTOPILOT TRIM INDICATOR
2215 AUTOPILOT MAIN SERVO
2216 AUTOPILOT TRIM SERVO
2220 SPEED-ATTITUDE CORRECT. SYSTEM
2230 AUTO THROTTLE SYSTEM
2250 AERODYNAMIC LOAD ALLEVIATING

23 COMMUNICATIONS

2300 COMMUNICATIONS SYSTEM
2310 HF COMMUNICATION SYSTEM
2311 UHF COMMUNICATION SYSTEM
2312 VHF COMMUNICATION SYSTEM
2320 DATA TRANSMISSION AUTO CALL
2330 ENTERTAINMENT SYSTEM
2340 INTERPHONE & PA SYSTEM
2350 AUDIO INTEGRATING SYSTEM
2360 STATIC DISCHARGE SYSTEM
2370 AUDIO/VIDEO MONITORING

24 ELECTRICAL POWER

2400 ELECTRICAL POWER SYSTEM
2410 ALTERNATOR-GENERATOR DRIVE
2420 AC GENERATION SYSTEM
2421 AC GENERATOR-ALTERNATOR
2422 AC INVERTER
2423 PHASE ADAPTER

24 ELECTRICAL POWER CONT'D

2424 AC REGULATOR
2425 AC INDICATING SYSTEM
2430 DC GENERATING SYSTEM
2431 BATTERY OVERHEAT WARN. SYSTEM
2432 BATTERY/CHARGER SYSTEM
2433 DC RECTIFIER-CONVERTER
2434 DC GENERATOR-ALTERNATOR
2435 STARTER-GENERATOR
2436 DC REGULATOR
2437 DC INDICATING SYSTEM
2440 EXTERNAL POWER SYSTEM
2450 AC POWER DISTRIBUTION SYSTEM
2460 DC POWER/DISTRIBUTION SYSTEM

25 EQUIPMENT/FURNISHINGS

2500 CABIN EQUIPMENT/FURNISHINGS
2510 FLIGHT COMPARTMENT EQUIPMENT
2520 PASSENGER COMPARTMENT EQUIPMENT
2530 BUFFET/GALLEYS
2540 LAVATORIES
2550 CARGO COMPARTMENTS
2551 AGRICULTURAL SPRAY SYSTEM
2560 EMERGENCY EQUIPMENT
2561 LIFE JACKET
2562 EMERGENCY LOCATOR BEACON
2563 PARACHUTE
2564 LIFE RAFT
2565 ESCAPE SLIDE
2570 ACCESSORY COMPARTMENT
2571 BATTERY BOX STRUCTURE
2572 ELECTRONIC SHELF SECTION

26 FIRE PROTECTION

2600 FIRE PROTECTION SYSTEM
2610 DETECTION SYSTEM
2611 SMOKE DETECTION
2612 FIRE DETECTION
2613 OVERHEAT DETECTION
2620 EXTINGUISHING SYSTEM
2621 FIRE BOTTLE, FIXED
2622 FIRE BOTTLE, PORTABLE

27 FLIGHT CONTROLS

2700 FLIGHT CONTROL SYSTEM
2701 CONTROL COLUMN SECTION
2710 AILERON CONTROL SYSTEM
2711 AILERON TAB CONTROL SYSTEM
2720 RUDDER CONTROL SYSTEM
2721 RUDDER TAB CONTROL SYSTEM
2722 RUDDER ACTUATOR
2730 ELEVATOR CONTROL SYSTEM
2731 ELEVATOR TAB CONTROL SYSTEM
2740 STABILIZER CONTROL SYSTEM
2741 STABILIZER POSITION INDICATING
2742 STABILIZER ACTUATOR
2750 TE FLAP CONTROL SYSTEM
2751 TE FLAP POSITION IND. SYSTEM
2752 TE FLAP ACTUATOR
2760 DRAG CONTROL SYSTEM
2761 DRAG CONTROL ACTUATOR
2770 GUST LOCK/DAMPER SYSTEM
2780 LE FLAP CONTROL SYSTEM
2781 LE FLAP POSITION IND. SYSTEM
2782 LE FLAP ACTUATOR

28 FUEL

2800 AIRCRAFT FUEL SYSTEM
2810 FUEL STORAGE
2820 ACFT FUEL DISTRIB. SYSTEM
2821 ACFT FUEL FILTER/STRAINER
2822 FUEL BOOST PUMP
2823 FUEL SELECTOR/SHUTOFF VALVE
2824 FUEL TRANSFER VALVE
2830 FUEL DUMP SYSTEM
2840 ACFT FUEL INDICATING
2841 FUEL QUANTITY INDICATOR
2842 FUEL QUANTITY SENSOR
2843 FUEL TEMPERATURE INDICATING
2844 FUEL PRESSURE INDICATOR

29 HYDRAULIC POWER

2900 HYDRAULIC POWER SYSTEM
2910 HYDRAULIC, MAIN SYSTEM
2911 HYDRAULIC POWER-ACCUMULATOR-MAIN
2912 HYDRAULIC FILTER-MAIN SYSTEM
2913 HYDRAULIC PUMP. ELECT-ENG.-MAIN
2914 HYDRAULIC HANDPUMP-MAIN
2915 HYDRAULIC PRESSURE RELIEF VLV-MAIN
2916 HYDRAULIC RESERVOIR-MAIN
2917 HYDRAULIC PRESSURE REGULATOR-MAIN
2920 HYDRAULIC, AUXILIARY SYSTEM
2921 HYDRAULIC ACCUMULATOR-AUXILIARY
2922 HYDRAULIC FILTER-AUXILIARY
2923 HYDRAULIC PUMP-AUXILIARY
2925 HYDRAULIC PRESSURE RELIEF-AUXILIARY
2926 HYDRAULIC RESERVOIR-AUXILIARY
2927 HYDRAULIC PRESSURE REGULATOR-AUX.
2930 HYDRAULIC SYSTEM INDICATING
2931 HYDRAULIC PRESSURE INDICATOR
2932 HYDRAULIC PRESSURE SENSOR
2933 HYDRAULIC QUANTITY INDICATOR
2934 HYDRAULIC QUANTITY SENSOR

30 ICE AND RAIN PROTECTION

3000 ICE/RAIN PROTECTION SYSTEM
3010 AIRFOIL ANTI/DE-ICE SYSTEM
3020 AIR INTAKE ANTI/DE-ICE SYSTEM
3030 PITOT/STATIC ANTI-ICE SYSTEM
3040 WINDSHIELD/DOOR RAIN/ICE REMOVAL
3050 ANTENNA/RADOME ANTI-ICE/DE-ICE SYSTEM
3060 PROP/ROTOR ANTI-ICE/DE-ICE SYSTEM
3070 WATER LINE ANTI-ICE SYSTEM
3080 ICE DETECTION

31 INSTRUMENTS

3100 INDICATING/RECORDING SYSTEM
3110 INSTRUMENT PANEL
3120 INDEPENDENT INSTRUMENTS (CLOCK, ETC.)
3130 DATA RECORDERS (FLT/MAINT)
3140 CENTRAL COMPUTERS (EICAS)
3150 CENTRAL WARNING
3160 CENTRAL DISPLAY
3170 AUTOMATIC DATA

32 LANDING GEAR

3200 LANDING GEAR SYSTEM
3201 LANDING GEAR/WHEEL FAIRING
3210 MAIN LANDING GEAR
3211 MAIN LANDING GEAR ATTACH SECTION
3212 EMERGENCY FLOTATION SECTION
3213 MAIN LANDING GEAR STRUT/AXLE/TRUCK
3220 NOSE/TAIL LANDING GEAR
3221 NOSE/TAIL LANDING GEAR ATTACH SECTION
3222 NOSE/TAIL LANDING GEAR STRUT/AXLE
3230 LANDING GEAR RETRACT/EXT. SYSTEM
3231 LANDING GEAR DOOR RETRACT SECTION
3232 LANDING GEAR DOOR ACTUATOR
3233 LANDING GEAR ACTUATOR
3234 LANDING GEAR SELECTOR
3240 LANDING GEAR BRAKE SYSTEM
3241 BRAKE ANTI-SKID SECTION
3242 BRAKE
3243 MASTER CYL/BRAKE VALVE
3244 TIRE
3245 TIRE TUBE
3246 WHEEL/SKI/FLOAT
3250 LANDING GEAR STEERING SYSTEM
3251 STEERING UNIT
3252 SHIMMY DAMPER
3260 LANDING GEAR POSITION & WARNING
3270 AUXILIARY GEAR (TAIL SKID)

33 LIGHTS

3300 LIGHTING SYSTEM
3310 FLIGHT COMPARTMENT LIGHTING
3320 PASSENGER COMPARTMENT LIGHTING
3330 CARGO COMPARTMENT LIGHTING
3340 EXTERIOR LIGHTING
3350 EMERGENCY LIGHTING

34 NAVIGATION

3400 NAVIGATION SYSTEM
3410 FLIGHT ENVIRONMENT DATA
3411 PITOT/STATIC SYSTEM
3412 OUTSIDE AIR TEMP. IND./SENSOR
3413 RATE OF CLIMB INDICATOR
3414 AIRSPEED/MACH INDICATING
3415 HIGH SPEED WARNING
3416 ALTIMETER, BAROMETRIC/ENCODER

34 NAVIGATION CONT'D

3417 AIR DATA COMPUTER
3418 STALL WARNING SYSTEM
3420 ATTITUDE AND DIRECTION DATA SYSTEM
3421 ATTITUDE GYRO & IND. SYSTEM
3422 DIRECTIONAL GYRO & IND. SYSTEM
3423 MAGNETIC COMPASS
3424 TURN & BANK/RATE OF TURN INDICATOR
3425 INTEGRATED FLT. DIRECTOR SYSTEM
3430 LANDING & TAXI AIDS
3431 LOCALIZER/VOR SYSTEM
3432 GLIDE SLOPE SYSTEM
3433 MICROWAVE LANDING SYSTEM
3434 MARKER BEACON SYSTEM
3435 HEADS UP DISPLAY SYSTEM
3436 WIND SHEAR DETECTION SYSTEM
3440 INDEPENDENT POS. DETERMINING SYSTEM
3441 INERTIAL GUIDANCE SYSTEM
3442 WEATHER RADAR SYSTEM
3443 DOPPLER SYSTEM
3444 GROUND PROXIMITY SYSTEM
3445 AIR COLLISION AVOIDANCE SYSTEM (TCAS)
3446 NON RADAR WEATHER SYSTEM
3450 DEPENDENT POSITION DETERMINING SYSTEM
3451 DME/TACAN SYSTEM
3452 ATC TRANSPONDER SYSTEM
3453 LORAN SYSTEM
3454 VOR SYSTEM
3455 ADF SYSTEM
3456 OMEGA NAVIGATION SYSTEM
3457 GLOBAL POSITIONING SYSTEM
3460 FLIGHT MANAGE. COMPUTING SYSTEM

35 OXYGEN

3500 OXYGEN SYSTEM
3510 CREW OXYGEN SYSTEM
3520 PASSENGER OXYGEN SYSTEM
3530 PORTABLE OXYGEN SYSTEM

36 PNEUMATIC

3600 PNEUMATIC SYSTEM
3610 PNEUMATIC DISTRIBUTION SYSTEM
3620 PNEUMATIC INDICATING SYSTEM

37 VACUUM

3700 VACUUM SYSTEM
3710 VACUUM DISTRIBUTION SYSTEM
3720 VACUUM INDICATING SYSTEM

38 WATER/WASTE

3800 WATER & WASTE SYSTEM
3810 POTABLE WATER SYSTEM
3820 WASH WATER SYSTEM
3830 WASTE DISPOSAL SYSTEM
3840 AIR SUPPLY (WATER PRESS. SYSTEM)

45 CENTRAL MAINT. SYSTEM

4500 CENTRAL MAINT. COMPUTER

49 AIRBORNE AUXILIARY POWER

4900 AIRBORNE APU SYSTEM
4910 APU COWLING/CONTAINMENT
4920 APU CORE ENGINE
4930 APU ENGINE FUEL & CONTROL
4940 APU START/IGNITION SYSTEM
4950 APU BLEED AIR SYSTEM
4960 APU CONTROLS
4970 APU INDICATING SYSTEM
4980 APU EXHAUST SYSTEM
4990 APU OIL SYSTEM

51 STANDARD PRACTICES/STRUCTURES

5100 STANDARD PRACTICES/STRUCTURES
5101 AIRCRAFT STRUCTURES
5102 BALLOON REPORTS

52 DOORS

5200 DOORS
5210 PASSENGER/CREW DOORS
5220 EMERGENCY EXIT
5230 CARGO/BAGGAGE DOORS
5240 SERVICE DOORS
5241 GALLEY DOORS
5242 E/E COMPARTMENT DOORS
5243 HYDRAULIC COMPARTMENT DOORS
5244 ACCESSORY COMPARTMENT DOORS
5245 AIR CONDITIONING COMPART. DOORS
5246 FLUID SERVICE DOORS
5247 APU DOORS
5248 TAIL CONE DOORS
5250 FIXED INNER DOORS
5260 ENTRANCE STAIRS
5270 DOOR WARNING SYSTEM
5280 LANDING GEAR DOORS

53 FUSELAGE

5300 FUSELAGE STRUCTURE (GENERAL)
5301 AERIAL TOW EQUIPMENT
5302 ROTORCRAFT TAIL BOOM
5310 FUSELAGE MAIN STRUCTURE
5311 FUSELAGE MAIN FRAME
5312 FUSELAGE MAIN BULKHEAD
5313 FUSELAGE MAIN LONGERON/STRINGER
5314 FUSELAGE MAIN KEEL
5315 FUSELAGE MAIN FLOOR BEAM
5320 FUSELAGE MISCELLANEOUS STRUCTURE
5321 FUSELAGE FLOOR PANEL
5322 FUSELAGE INTERNAL MOUNT STRUCTURE
5323 FUSELAGE INTERNAL STAIRS
5324 FUSELAGE FIXED PARTITIONS
5330 FUSELAGE MAIN PLATE/SKIN
5340 FUSELAGE MAIN ATTACH FITTINGS
5341 WING ATTACH FITTINGS (ON FUSELAGE)
5342 STABILIZER ATTACH FITTINGS
5343 LANDING GEAR ATTACH FITTINGS
5344 FUSELAGE DOOR HINGES
5345 FUSELAGE EQUIPMENT ATTACH FITTINGS
5346 POWERPLANT ATTACH FITTINGS
5347 SEAT/CARGO ATTACH FITTINGS
5350 FUSELAGE AERODYNAMIC FAIRINGS

54 NACELLES/PYLONS

5400 NACELLE/PYLON STRUCTURE
5410 MAIN FRAME (ON NACELLE/PYLON)
5411 FRAME/SPAR/RIB(NACELLE/PYLON)
5412 BULKHEAD/FIREWALL (NAC/PYLON)
5413 LONGERON/STRINGER (NAC/PYLON)
5414 PLATE SKIN (NAC/PYLONS)
5415 ATTACH FITTINGS (NAC/PYLON)

55 STABILIZERS

5500 EMPENNAGE STRUCTURE
5510 HORIZONTAL STABILIZER STRUCTURE
5511 HORIZONTAL STABILIZER SPAR/RIB
5512 HORIZONTAL STABILIZER PLATE/SKIN
5513 HORIZONTAL STABILIZER TAB STRUCTURE
5520 ELEVATOR STRUCTURE

55 STABILIZERS CONT'D

5521 ELEVATOR SPAR/RIB STRUCTURE
5522 ELEVATOR PLATES/SKIN STRUCTURE
5523 ELEVATOR TAB STRUCTURE
5530 VERTICAL STABILIZER STRUCTURE
5531 VERTICAL STABILIZER SPAR/RIB STRUCTURE
5532 VERTICAL STABILIZER PLATES/SKIN
5533 VENTRAL STRUCTURE (ON VERT. STAB)
5540 RUDDER STRUCTURE
5541 RUDDER SPAR/RIB STRUCTURE
5542 RUDDER PLATE/SKIN STRUCTURE
5543 RUDDER TAB STRUCTURE
5550 EMPENNAGE FLT. CONT. ATTACH FITTING
5551 HORIZONTAL STABILIZER ATTACH FITTING
5552 ELEVATOR/TAB ATTACH FITTINGS
5553 VERT. STAB. ATTACH FITTINGS
5554 RUDDER/TAB ATTACH FITTINGS

56 WINDOWS

5600 WINDOW/WINDSHIELD SYSTEM
5610 FLIGHT COMPARTMENT WINDOWS
5620 PASSENGER COMPARTMENT WINDOWS
5630 DOOR WINDOWS
5640 INSPECTION WINDOWS

57 WINGS

5700 WING STRUCTURE
5710 WING MAIN FRAME STRUCTURE
5711 WING SPAR STRUCTURE
5712 WING RIB STRUCTURE
5713 WING LONGERON/STRINGER
5714 WING CENTER BOX
5720 WING MISCELLANEOUS STRUCTURE
5730 WING PLATES/SKINS
5740 WING ATTACH FITTINGS
5741 WING, FUSELAGE ATTACH FITTINGS
5742 WING, NAC/PYLON ATTACH FITTINGS
5743 WING, LANDING GEAR ATTACH FITTINGS
5744 CONTROL SURFACE ATTACH FITTINGS
5750 WING CONTROL SURFACE STRUCTURE
5751 AILERON STRUCTURE
5752 AILERON TAB STRUCTURE
5753 TE FLAP STRUCTURE
5754 LEADING EDGE DEVICE STRUCTURE
5755 SPOILER STRUCTURE

61 PROPELLERS/PROPULSORS

6100 PROPELLER SYSTEM
6110 PROPELLER ASSEMBLY
6111 PROPELLER BLADE SECTION
6112 PROPELLER DE-ICE BOOT SECTION
6113 PROPELLER SPINNER SECTION
6114 PROPELLER HUB SECTION
6120 PROPELLER CONTROL SYSTEM
6121 PROPELLER SYNCHRONIZER SECTION
6122 PROPELLER GOVERNOR
6123 PROPELLER FEATHERING/REVERSING
6130 PROPELLER BRAKING
6140 PROPELLER INDICATING SYSTEM

62 MAIN ROTOR

6200 MAIN ROTOR SYSTEM
6210 MAIN ROTOR BLADES
6220 MAIN ROTOR HEAD
6230 MAIN ROTOR MAST/SWASHPLATE
6240 MAIN ROTOR INDICATING SYSTEM

63 MAIN ROTOR DRIVE

6300 MAIN ROTOR DRIVE SYSTEM
6310 ENGINE/TRANSMISSION COUPLING
6320 MAIN ROTOR GEARBOX
6321 MAIN ROTOR BRAKE
6322 ROTORCRAFT COOLING FAN SYSTEM
6330 MAIN ROTOR TRANSMISSION MOUNT
6340 ROTOR DRIVE INDICATING SYSTEM

64 TAIL ROTOR

6400 TAIL ROTOR SYSTEM
6410 TAIL ROTOR BLADE
6420 TAIL ROTOR HEAD
6440 TAIL ROTOR INDICATING SYSTEM

65 TAIL ROTOR DRIVE

6500 TAIL ROTOR DRIVE SYSTEM
6510 TAIL ROTOR DRIVE SHAFT
6520 TAIL ROTOR GEARBOX
6540 TAIL ROTOR DRIVE INDICATING SYSTEM

67 ROTORS FLIGHT CONTROL

6700 ROTORCRAFT FLIGHT CONTROL
6710 MAIN ROTOR CONTROL
6711 TILT ROTOR FLIGHT CONTROL
6720 TAIL ROTOR CONTROL SYSTEM
6730 ROTORCRAFT SERVO SYSTEM

71 POWERPLANT

7100 POWERPLANT SYSTEM
7110 ENGINE COWLING SYSTEM
7111 COWL FLAP SYSTEM
7112 ENGINE AIR BAFFLE SECTION
7120 ENGINE MOUNT SECTION
7130 ENGINE FIRESEALS
7160 ENGINE AIR INTAKE SYSTEM
7170 ENGINE DRAINS

72 TURBINE/TURBOPROP ENGINE

7200 ENGINE (TURBINE/TURBOPROP)
7210 TURBINE ENGINE REDUCTION GEAR
7220 TURBINE ENGINE AIR INLET SECTION
7230 TURBINE ENGINE COMPRESSOR SECTION
7240 TURBINE ENGINE COMBUSTION SECTION
7250 TURBINE SECTION
7260 TURBINE ENGINE ACCESSORY DRIVE
7261 TURBINE ENGINE OIL SYSTEM
7270 TURBINE ENGINE BYPASS SECTION

73 ENGINE FUEL & CONTROL

7300 ENGINE FUEL & CONTROL
7310 ENGINE FUEL DISTRIBUTION
7311 ENGINE FUEL-OIL COOLER
7312 FUEL HEATER
7313 FUEL INJECTOR NOZZLE
7314 ENGINE FUEL PUMP
7320 FUEL CONTROLLING SYSTEM
7321 FUEL CONTROL/ELECTRONIC
7322 FUEL CONTROL/CARBURETOR
7323 TURBINE GOVERNOR
7324 FUEL DIVIDER
7330 ENGINE FUEL INDICATING SYSTEM
7331 FUEL FLOW INDICATING
7332 FUEL PRESSURE INDICATING
7333 FUEL FLOW SENSOR
7334 FUEL PRESSURE SENSOR

74 IGNITION

7400 IGNITION SYSTEM
7410 IGNITION POWER SUPPLY
7411 LOW TENSION COIL
7412 EXCITER
7413 INDUCTION VIBRATOR
7414 MAGNETO/DISTRIBUTOR
7420 IGNITION HARNESS (DISTRIBUTION)
7421 SPARK PLUG/IGNITER
7430 IGNITION SWITCHING

75 AIR

7500 ENGINE BLEED AIR SYSTEM
7510 ENGINE ANTI-ICING SYSTEM
7520 ENGINE COOLING SYSTEM
7530 COMPRESSOR BLEED CONTROL
7531 COMPRESSOR BLEED GOVERNOR
7532 COMPRESSOR BLEED VALVE
7540 BLEED AIR INDICATING SYSTEM

76 ENGINE CONTROLS

7600 ENGINE CONTROLS
7601 ENGINE SYNCHRONIZING
7602 MIXTURE CONTROL
7603 POWER LEVER
7620 ENGINE EMERGENCY SHUTDOWN SYSTEM

77 ENGINE INDICATING

7700 ENGINE INDICATING SYSTEM
7710 POWER INDICATING SYSTEM
7711 ENGINE PRESSURE RATIO (EPR)
7712 ENGINE BMEP/TORQUE INDICATING
7713 MANIFOLD PRESSURE (MP) INDICATING
7714 ENGINE RPM INDICATING SYSTEM
7720 ENGINE TEMP. INDICATING SYSTEM
7721 CYLINDER HEAD TEMP (CHT) INDICATING
7722 ENG. EGT/TIT INDICATING SYSTEM
7730 ENGINE IGNITION ANALYZER SYSTEM
7731 ENGINE IGNITION ANALYZER
7732 ENGINE VIBRATION ANALYZER
7740 ENGINE INTEGRATED INSTRUMENT SYSTEM

78 ENGINE EXHAUST

7800 ENGINE EXHAUST SYSTEM
7810 ENGINE COLLECTOR/TAILPIPE/NOZZLE
7820 ENGINE NOISE SUPPRESSOR
7830 THRUST REVERSER

79 ENGINE OIL

7900 ENGINE OIL SYSTEM (AIRFRAME)
7910 ENGINE OIL STORAGE (AIRFRAME)
7920 ENGINE OIL DISTRIBUTION (AIRFRAME)
7921 ENGINE OIL COOLER
7922 ENGINE OIL TEMP. REGULATOR
7923 OIL SHUTOFF VALVE
7930 ENGINE OIL INDICATING SYSTEM
7931 ENGINE OIL PRESSURE
7932 ENGINE OIL QUANTITY
7933 ENGINE OIL TEMPERATURE

80 STARTING

8000 ENGINE STARTING SYSTEM
8010 ENGINE CRANKING
8011 ENGINE STARTER
8012 ENGINE START VALVES/CONTROLS

81 TURBOCHARGING

8100 EXHAUST TURBINE SYSTEM (RECIP)
8110 POWER RECOVERY TURBINE (RECIP)
8120 EXHAUST TURBOCHARGER

82 WATER INJECTION

8200 WATER INJECTION SYSTEM

83 ACCESSORY GEARBOXES

8300 ACCESSORY GEARBOXES

85 RECIPROCATING ENGINE

8500 ENGINE (RECIPROCATING)
8510 RECIPROCATING ENGINE FRONT SECTION
8520 RECIPROCATING ENGINE POWER SECTION
8530 RECIPROCATING ENGINE CYLINDER SECTION
8540 RECIPROCATING ENGINE REAR SECTION
8550 RECIPROCATING ENGINE OIL SYSTEM

MECHANICS CREED

UPON MY HONOR I swear that I shall hold in sacred trust the rights and privileges conferred upon me as a certified mechanic. Knowing full well that the safety and lives of others are dependent upon my skill and judgment, I shall never knowingly subject others to risks which I would not be willing to assume for myself, or for those dear to me.

IN DISCHARGING this trust, I pledge myself never to undertake work or approve work which I feel to be beyond the limits of my knowledge; nor shall I allow any non-certificated superior to persuade me to approve aircraft or equipment as airworthy against my better judgment; nor shall I permit my judgment to be influenced by money or other personal gain; nor shall I pass as airworthy aircraft or equipment about which I am in doubt, either as a result of direct inspection or uncertainty regarding the ability of others who have worked on it to accomplish their work satisfactorily.

I REALIZE the grave responsibility which is mine as a certified airman, to exercise my judgment on the airworthiness of aircraft and equipment. I, therefore, pledge unyielding adherence to these precepts for the advancement of aviation and for the dignity of my vocation.